



## Epidemiology of Lupus in Latin America

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### Abstract

Epidemiology studies on Systemic lupus erythematosus (SLE) are scarce in Latin America. A comprehensive search on MEDLINE and LILACS databases for relevant articles using the combination search terms of lupus and epidemiology was performed and herewith we provide a short review of the published data found. Twelve studies were identified regarding incidence or prevalence of SLE in Latin America. Incidence varied from 4.7 to 8.7/per/100000 person's years, and prevalence ranged from 47.6 to 90 per 100000 inhabitants. There were important variations in the epidemiology of lupus in Latin America. These variabilities could be explained by genetic or environmental differences, differences on the methodology used, and/or in the quality of the studies. Latin America is heterogeneous and more regional studies are needed.

### Introduction

Epidemiology is based on two fundamental assumptions: first, that human disease does not occur at random, and second, that human disease has causal and sometimes preventive factors than can be identified through investigations of different populations, in different places or at different times [1].

The most widely used definition of epidemiology is "the study of the distribution and determinants of disease frequency" in human populations [1]. These three components distribution, determinants and frequency - comprise all epidemiologic principles and methods [1].

The first component, measurement of disease frequency, involves quantification of the existence or occurrence of disease. Availability of these data is a prerequisite for any systematic investigation of pattern of disease occurrence [1].

Systemic Lupus Erythematosus (SLE) is a complex multifactorial disease, and fully understanding of its etiopathogeny has not been reached yet. We can't assume that the disease behaves in the same way all around the world and that causal factors are equal. In fact, there is enough data nowadays showing a different behavior of SLE in different populations. Excluding the United States and Canada, the rest of the American continent is (by and large) Latin America. Several ethnic groups share this vast territory of 22 million square kilometers [2].

These groups are: Caucasian, African-Latin American (ALA), Mestizo (mixed European and Amerindian ancestry) and pure Amerindian (individuals with purely local ancestors comprising an enormous variety of tribes and groups throughout the entire continent). GLADEL (Grupo Latino Americano De Estudio del Lupus) studies have shown that Lupus patients in Latin America are a very heterogeneous population, with different organ involvements, clinical manifestations and prognostic [2,3].

Epidemiologic studies are therefore of capital interest in order to establish the burden of lupus in different places and subgroups.

Epidemiological data on SLE in developing countries is scarce. Our objective is to conduct a brief review of studies regarding incidence and prevalence of the disease in Latin America.

### Methods

This review is based on publications found through searches of the MEDLINE and LILACS databases for relevant articles using the combination search terms of lupus and (epidemiology, incidence, prevalence) and Latin America or each of the country names of the region. References within these selected reports were also reviewed.

### Results

Twelve studies were identified regarding incidence or prevalence of SLE in Latin America (Table 1). Of these studies, (Table 1) three were done in Caribbean Islands, where the population is small and it belongs to a unique health system, which allows having data of the whole population [4-6]. Other six studies, [7-12] were done using a community-Oriented Program for the Control of Rheumatic Diseases (COPCORD) methodology.

After cross-culturally validating of the COPCORD questionnaire for the corresponding communities, a cross-sectional, community-based census was done using a house-to-house method.

The COPCORD questionnaire is designed to collect community data on pain and disability in joints and/or musculoskeletal soft tissues during the previous 7 days and/or any time in the past. Cases of suspected rheumatic disease were assessed by a rheumatologist to confirm the diagnosis.

Two of the studies performed in Brazil were done in communities where they could have access to all health services providing health service in rheumatology and therefore having data of the whole population [13,14].

In the Argentinian study, incidence and prevalence of lupus was assessed in a health maintenance organisation in Buenos Aires [15].

Area	Authors	Study period	Incidence  (cases per 100,000 persons-years)	Prevalence  (cases per 100,000 habitants)
Latin America				
Argentina (Buenos Aires)	Scolnik et al. [15]	1998-2009	6.3	58.6
Barbados Island	Flower et al. [5]	2000-2009	6.75	-
Brazil (Cascavel)	Nakashima et al. [13]	2007-2008	4.8	-
Brazil (Montes Claros)	Senna et al. [7]	-	-	98
Brazil (Natal)	Vilar et al. [14]	2002	8.7	-
Cuba (La Habana)	Reyes-Llerena et al. [9]	2006	-	60
Curacao island	Nossent et al. [6]	1992	4.6	47.6
Martinique Island	Deligny et al. [4]	1990-1999	4.7	64.2
Mexico (5 regions)	Pelaez-Ballestas et al. [10]	2005	-	70
Mexico (Nueva Leon)	Rodriguez-Amado et al. [8]	2008-2009	-	40
Mexico (Yucatan)	Alvarez-Nemegyei. [12]	-	-	70
Mexico (Oaxaca)	Julian-Santiago et al. [11]	-	-	90

**Table 1:** Incidence and prevalence of SLE in different Latin American studies.

## Discussion

Performing epidemiological studies requires precise data of a whole population. Most of these studies are done in first world countries where health systems encompass almost all population and electronic registries and databases have information from all individuals belonging to the health care system. In developing countries, like Latin American ones, this is not the reality. First of all, most welfare programs in Latin America were founded on social insurance principles but in contrast to European countries, social insurance never reached universality. In addition, governments provided a limited range of universal tax-funded health services - universal meaning that everybody was entitled to use most services in public facilities. However, those tended to be of poor quality. In practice, publicly provided health services were mostly targeted to low-income households as more affluent households usually opted for privately provided health care. Electronic registries and databases are quite rare and epidemiological data is very difficult to obtain. Therefore, performing epidemiologic studies in Latin America is a challenge.

Moreover, the apparent homogeneity of Latin America is a myth, and within the subcontinent lies great diversity. As mentioned above, Latin America is some large subcontinent rich in the variety of racial admixtures between and within countries. In addition, socioeconomic, educational and demographic variations are prominent [3,15].

Around the world, incidence rates of SLE range from approximately 1 to 10 per 100,000 person-years and prevalence rates generally range from 20 to 70 per 100,000 [16] Studies performed in Latin America have shown mostly similar data (Table 1). However, study methodologies differ and interpretation of results has limitations. These limitations include lack of standardized criteria for case detection, passive methods of case ascertainment that miss mild cases (i.e., review of inpatient medical records), studies conducted in small geographic areas that make generalization difficult, the use of self-report or self-report physician diagnosis that produces a much higher prevalence (including patients who may not meet strict criteria), among some of them [15].

Of the studies performed in Latin America, three were done in Caribbean Islands, with populations that are small and with a different background than the majority of the subcontinent [4-6]. Other six studies, [7-12] were done using a COPCORD methodology. This approach may not be the most adequate one to detect systemic diseases like lupus where not all the patients have joint involvement. Moreover, there is a selection bias in the respondents to the questionnaire. In the Argentinian study, incidence and prevalence of lupus was assessed in a health maintenance organization in Buenos Aires, but data cannot be extrapolated to the complete Argentinian population that has a greater proportion of mestizos [15].

As we can see, more efforts are needed to achieve a better characterization of the Latin America lupus population in order to understand the burden of SLE in this region. A more profound knowledge of the local lupus epidemiology may allow establishing specific health care policies.

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